(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT) Rec'd PCT/PTO 23 FFB 2005

(19) World Intellectual Property Organization

International Bureau

(43) International Publication Date 4 March 2004 (04.03.2004)





(10) International Publication Number **PCT** WO 2004/019419 A3

(51) International Patent Classification7:

H01L 31/04

(21) International Application Number:

PCT/CA2003/001295

(22) International Filing Date: 22 August 2003 (22.08.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2,399,673

23 August 2002 (23.08.2002) CA

(71) Applicant (for all designated States except US): AL-BERTA RESEARCH COUNCIL INC. [CA/CA]; 250 Karl Clark Road, Edmonton, Alberta T6N 1E4 (CA).

(72) Inventors; and

- (75) Inventors/Applicants (for US only): KOVACIK, Gary [CA/CA]; 250 Karl Clark Road, Edmonton, Alberta T6N 1E4 (CA). FRAAS, Lewis [US/US]; 1105 - 12th Avenue N.W., Suite A2, Issaquah, WA 98027-8994 (US). ASTLE, Chris [CA/CA]; 250 Karl Clark Road, Edmonton, Alberta T6N 1E4 (CA).
- (74) Agent: THOMPSON, DOUGLAS B.; c/o Thompson Lambert LLP, 10328 - 81 Avenue, Suite #200, Edmonton, Alberta T6E 1X2 (CA).

- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

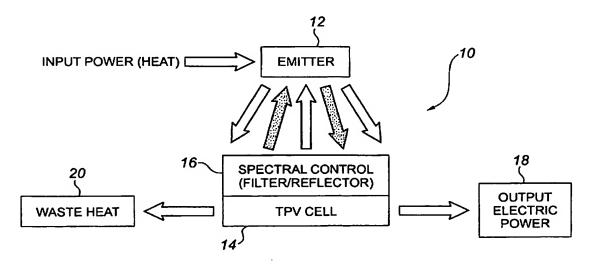
of inventorship (Rule 4.17(iv)) for US only

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 13 January 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: THERMOPHOTOVOLTAIC DEVICE



(57) Abstract: A thermophotovoltaic device (10) includes an energy source (12) compatible with thermophotovoltaic cells (14). A filter (16), adapted to filter out long wavelength energy, is positioned between the energy source (12) and the thermophotovoltaic cells (14). The filter (16) has dual walls (30).

INTERNATIONAL SEARCH REPORT

International Application No

	PCT/CA	01295		
A. CLASSIFI	CATION OF SUBJECT MATTER H01L31/04			
According to	International Patent Classification (IPC) or to both national classification and IPC			
B. FIELDS S	SEARCHED currentation searched (classification system followed by classification symbols)			
IPC 7	H01L			
	on searched other than minimum documentation to the extent that such documents are included in the fields			
	ta base consulted during the international search (name of data base and, where practical, search terms use	ed)		
EPO-Int	cernal, WPI Data, PAJ			
C DOCUME	ENTS CONSIDERED TO BE RELEVANT			
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to daim No.		
Χ	US 5 512 109 A (FRAAS LEWIS M ET AL) 30 April 1996 (1996-04-30) column 2, line 39 - line 44	1,2,4-7		
x	US 5 092 767 A (DEHLSEN JAMES G P) 3 March 1992 (1992-03-03) column 4, line 19 - line 41	1,4,5,7		
A	US 5 551 992 A (FRAAS LEWIS M) 3 September 1996 (1996-09-03) cited in the application column 5, line 48 - line 61	1-7		
A	US 4 707 560 A (HOTTEL HOYT C ET AL) 17 November 1987 (1987-11-17) column 5, line 26 - line 31	1-7		
Furd	ther documents are listed in the continuation of box C. X Patent family members are list	ed in annex.		
"A" docum consi "E" earlier filing "L" docum which citatic "O" docum other	ategories of cited documents: In the sent defining the general state of the art which is not detered to be of particular relevance document but published on or after the international date that which may throw doubts on priority claim(s) or no rother special reason (as specified) In the sent defining the general state of the art which is not determined to be of particular relevance; the cannot be considered novel or cannot be considered novel or cannot be considered novel or cannot be considered to involve an inventive step when the cannot be considered to involv	To later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention. "Y" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled		
l	e actual completion of the international search Date of mailing of the international			
}	8 November 2004 23/11/2004			
	I mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016 A210 (second sheet) (January 2004) DEST AVAILABLE COPY			

INTERNATIONAL SEARCH REPORT

nform

n patent family members

Internationa	olication No	
PCT/CA	J/01295	

		_		Ticiten	J, 01233
Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 5512109	Α	30-04-1996	US	5439532 A	08-08-1995
			US	5383976 A	24-01-1995
			US	5312521 A	17-05-1994
			US	5551992 A	03-09-1996
			US	5403405 A	04-04-1995
			US	5401329 A	28-03-1995
US 5092767	Α	03-03-1992	US	5044939 A	03-09-1991
			WO	9207225 A1	30-04-1992
US 5551992	Α	03-09-1996	US	5512109 A	30-04-1996
			US	5439532 A	08-08-1995
			US	5383976 A	24-01-1995
			US	5312521 A	17-05-1994
			AU	5562396 A	29-11-1996
			WO	9636077 A1	14-11-1996
			US	5403405 A	04-04-1995
			US 	5401329 A	28-03-1995
US 4707560	Α	17-11-1987	AU	1181988 A	15-07-1988
			CA	1271521 A1	10-07-1990
			DE	3787972 D1	02-12-1993
			DE	3787972 T2	28-04-1994
			EP	0336935 A1	18-10-1989
			ES	2005485 A6	01-03-1989
	•		JP	2502692 T	23-08-1990
			WO	8804859 A1	30-06-1988